

WHAT IS CLAIMED IS:

1. A light collection apparatus for collecting light from a light source, comprising:

- i. a lens, said lens
- ii. including a surface
- iii. having a spherical curvature; and
- iv. an optical transmission medium
- v. placed at a center
- vi. of said spherical curvature, whereby
- vii. said lens directs
- viii. at least a portion of the light
- ix. into said optical transmission medium.

2. The light collection apparatus of claim 1, wherein

- i. said optical transmission medium
- ii. includes a connector
- iii. detachably engaged to
- iv. an attachment assembly
- v. on said lens
- vi. for placing said optical transmission medium
- vii. at said center of said spherical curvature.

3. The light collection apparatus of claim 2, wherein

- i. said attachment assembly and
- ii. said lens
- iii. are integrated
- iv. as a single unit.

4. The light collection apparatus of claim 2, wherein

- i. said connector

- ii. includes a pivoting element
 - iii. for adjusting
 - iv. said optical transmission medium
 - v. to said lens.
5. The light collection apparatus of claim 1, wherein
- i. said optical transmission medium
 - ii. includes an optical fiber.
6. The light collection apparatus of claim 1, wherein
- i. said lens
 - ii. is a spherical lens.
7. The light collection apparatus of claim 1, wherein
- i. said lens
 - ii. includes a material
 - iii. having a predetermined index of refraction.
8. The light collection apparatus of claim 7, wherein
- i. the predetermined index of refraction is approximately 1.49.
9. The light collection apparatus of claim 8, wherein
- i. the material is acrylic.
10. The light collection apparatus of claim 7, wherein
- i. the predetermined index of refraction is approximately 1.39.
11. The light collection apparatus of claim 10, wherein
- i. the material is pyrex glass.
12. The light collection apparatus of claim 1, wherein

- i. said lens
 - ii. includes an outer layer and
 - iii. an inner layer.
- 13. The light collection apparatus of claim 12, wherein
 - i. an interface
 - ii. between said outer layer and said inner layer
 - iii. includes a second spherical curvature.
- 14. The light collection apparatus of claim 13, wherein
 - i. a center of the second spherical curvature
 - ii. overlaps
 - iii. the center
 - iv. of the spherical curvature
 - v. of the surface.
- 15. The light collection apparatus of claim 14, wherein
 - i. the second spherical curvature
 - ii. is parallel to
 - iii. the spherical curvature.
- 16. The light collection apparatus of claim 12, wherein
 - i. the outer layer includes an outer layer material and
 - ii. the inner layer includes an inner layer material, and
 - iii. an index of refraction of the outer layer material is
 - iv. less than
 - v. an index of refraction of the inner layer material.
- 17. The light collection apparatus of claim 1, further comprising:
 - i. a controller
 - ii. connected to

- iii. said optical transmissions medium,
 - iv. said controller being adapted to control
 - v. at least one of
 - vi. an output amount and
 - vii. an output characteristic
 - viii. of the directed light
 - ix. to be outputted to
 - x. one or more outputs.
18. The light collection apparatus of claim 17, wherein
- i. the output characteristic
 - ii. includes a wavelength
 - iii. of the directed light.
19. The light collection apparatus of claim 17, wherein
- i. the one or more outputs
 - ii. includes an energy converter.
20. The light collection apparatus of claim 17, wherein
- i. the one or more outputs
 - ii. includes a lighting apparatus.
21. The light collection apparatus of claim 1, further comprising:
- i. an energy converter
 - ii. connected to
 - iii. said optical transmissions medium,
 - iv. said energy converter
 - v. being adapted to convert
 - vi. the directed light
 - vii. into a different form of energy.

22. The light collection apparatus of claim 21, wherein
 - i. said energy converter
 - ii. includes a thermal photovoltaic cell.
23. The light collection apparatus of claim 21, wherein
 - i. said energy converter
 - ii. includes a light-absorbing medium.
24. The light collection apparatus of claim 23, wherein
 - i. said light-absorbing medium
 - ii. includes carbon particles.
25. The light collection apparatus of claim 21, wherein
 - i. said energy converter
 - ii. includes an electricity generator.
26. The light collection apparatus of claim 21, further comprising:
 - i. an energy storage element
 - ii. connected to
 - iii. said energy converter,
 - iv. said energy storage element
 - v. being adapted to store
 - vi. energy
 - vii. outputted by said energy converter.
27. The light collection apparatus of claim 1, wherein
 - i. an operational arc
 - ii. of said surface is
 - iii. such that a focal point thereof
 - iv. is fixed and
 - v. independent of

- vi. a location of
- vii. the light source.

28. The light collection apparatus of claim 27, wherein

- i. said optical transmission medium
- ii. overlaps
- iii. said focal point.

29. The light collection apparatus of claim 1, further comprising:

- i. a light collector, whereby
- ii. said light collector directs
- iii. a remaining portion of the light
- iv. towards the optical transmission medium.

30. The light collection apparatus of claim 29, wherein:

- i. said light collector includes
- ii. a convex surface.

31. The light collection apparatus of claim 29, wherein:

- i. said light collector includes
- ii. a fresnel surface.

32. The light collection apparatus of claim 29, wherein:

- i. said light collector and
- ii. said lens
- iii. are integrated
- iv. as a single unit.

33. The light collection apparatus of claim 29, wherein:

- i. said light collector includes
- ii. a conical shape.

34. The light collection apparatus of claim 33, wherein:
- i. said light collector includes
 - ii. a surface that forms
 - iii. a frustrum
 - iv. of a cone.
35. The light collection apparatus of claim 33, wherein:
- i. said light collector includes
 - ii. a reflective surface.
36. A lighting apparatus, comprising:
- i. one or more light collectors
 - ii. located at a collector location; and
 - iii. one or more light fixtures
 - iv. located at one or more locations
 - v. separate from said collector location,
 - vi. said one or more light fixtures being
 - vii. connected to
 - viii. said one or more light collectors
 - ix. through an optical transmission medium, whereby
 - x. light
 - xi. collected by
 - xii. said one or more light collectors
 - xiii. is emitted by
 - xiv. said one or more light fixtures.
37. The lighting apparatus of claim 36, wherein
- i. said optical transmission medium
 - ii. includes an optical fiber.

38. The lighting apparatus of claim 36, wherein
- i. at least one of
 - ii. said light collectors
 - iii. is adapted to collect
 - iv. natural light.
39. The lighting apparatus of claim 36, further comprising:
- i. a controller
 - ii. connected to
 - iii. said optical transmissions medium,
 - iv. said controller being adapted to control
 - v. at least one of
 - vi. an output amount and
 - vii. an output characteristic
 - viii. of the light
 - ix. collected by
 - x. said one or more light collectors
 - xi. to be outputted to
 - xii. said one or more light fixtures.
40. The lighting apparatus of claim 39, wherein
- i. the output characteristic
 - ii. includes a wavelength
 - iii. of the light.

41. A light collection method of collecting light from a light source, comprising the steps of:
- i. directing at least a portion of the light
 - ii. into an optical transmission medium
 - iii. using a lens, said lens
 - iv. including a surface

- v. having a spherical curvature; and
 - vi. transmitting the directed light through said optical transmission medium,
 - vii. said optical transmission medium being
 - viii. placed at a center
 - ix. of said spherical curvature.
42. The light collection method of claim 41, further comprising the step of
- i. controlling
 - ii. at least one of
 - iii. an output amount and
 - iv. an output characteristic
 - v. of the directed light
 - vi. to be outputted.
43. The light collection method of claim 42, wherein
- i. the output characteristic
 - ii. includes a wavelength
 - iii. of the light.
44. The light collection method of claim 41, further comprising the step of
- i. converting
 - ii. the directed light
 - iii. into a different form of energy.
45. The light collection method of claim 44, wherein
- i. the converting step converts the directed light
 - ii. to heat energy.
46. The light collection method of claim 45, further comprising the step of
- i. storing the heat energy.

47. The light collection method of claim 44, wherein
 - i. the converting step converts the directed light
 - ii. to electricity.
48. The light collection method of claim 47, further comprising the step of
 - i. storing the electricity.
49. The light collection method of claim 41, wherein
 - i. an operational arc
 - ii. of said surface is
 - iii. such that a focal point thereof
 - iv. is fixed and
 - v. independent of
 - vi. a location of
 - vii. the light source.
50. The light collection method of claim 49, wherein
 - i. said optical transmission medium
 - ii. overlaps
 - iii. said focal point.
51. The light collection method of claim 41, further comprising the step of:
 - i. directing a remaining portion of the light
 - ii. towards the optical transmission medium
 - iii. using a light collector.
52. The light collection method of claim 51, wherein:
 - i. said light collector includes
 - ii. a convex surface.

53. The light collection method of claim 51, wherein:
- i. said light collector includes
 - ii. a fresnel surface.
54. The light collection method of claim 51, wherein:
- i. said light collector and
 - ii. said lens
 - iii. are integrated
 - iv. as a single unit.
55. The light collection apparatus of claim 51, wherein:
- i. said light collector includes
 - ii. a conical shape.
56. The light collection apparatus of claim 55, wherein:
- i. said light collector includes
 - ii. a surface that forms
 - iii. a frustrum
 - iv. of a cone.
57. The light collection apparatus of claim 55, wherein:
- i. said light collector includes
 - ii. a reflective surface.
58. A lighting method, comprising the steps of:
- i. collecting light at a light collection location; and
 - ii. emitting the collected light
 - iii. at one or more locations
 - iv. separate from said light collection location
 - v. using one or more light fixtures.

59. The lighting method of claim 58, wherein
- i. the collected light is natural light.
60. The lighting method of claim 58, further comprising step of
- i. controlling
 - ii. at least one of
 - iii. an output amount and
 - iv. an output characteristic
 - v. of the collected light
 - vi. to be emitted
 - vii. by said one or more light fixtures.
61. The light collection method of claim 60, wherein
- i. the output characteristic
 - ii. includes a wavelength of the collected light.